

CLAIMS:

1. A prism sheet of a backlight unit for an LCD, the prism sheet having a structural surface (14) on one side thereof and a flat surface (15) opposing the structural surface on another side thereof, the structural surface (14) including a linear arrangement of right-angled isosceles triangular prisms arranged in parallel and configured to form a plurality of peaks (11) and valleys (12), each of the prisms having perpendicular surfaces that slant by an angle of approximately  $45^\circ$  with respect to the flat surface (15),

wherein the structural surface (14) is configured to have non-planar peaks (11) with a maximum height and a minimum height along a length direction of the peak, and a curved layer (17) having the same cycle as a cycle of height variation of the peak is formed at a boundary surface (16) between the structural surface 14 and the flat surface so as to maintain the right-angled isosceles triangular prisms formed due to a difference between the highest point and the lowest point of each of the peaks to have a predetermined size so that a distance between the valleys (12) is uniform along the length direction.

2. The prism sheet of claim 1, wherein the peak is shaped in a streamline curvature 18 in which a difference between the maximum height to the minimum height is shown in a fluent curvature.

3. The prism sheet of claim 1, wherein a streamline curvature formed due to a difference between heights of the

peaks has a cycle, which is repeated periodically or non-periodically.

4. The prism sheet of claim 1, wherein the peak has a  
5 height of 0.125 - 2.5  $\mu\text{m}$ .

5. The prism sheet of claim 1, wherein the prism sheet is made of transparent and flexible polymer film.

10 6. The prism sheet of claim 5, wherein the polymer film is made of any one polymer selected from the group consisting of acrylate, polycarbonate, polyester, and polyvinyl chloride.

15 7. The prism sheet of claim 5, wherein the polymer film is a multi-layer film in which acrylate is laminated on polycarbonate.

20 8. The prism sheet of claim 5, wherein the polymer film is a multi-layer film in which acrylate is laminated on polyester.

25 9. The prism sheet of claim 1, wherein the prism sheet is constructed such that at least two prisms are arranged every unit pixel for the LCD, i.e., the prism has a size of 0.127 mm or less.

30 10. A backlight unit having two or more prism sheets of which prisms are crossed with each other by a predetermined angle, each the prism sheets having a structural surface (14)

on a side thereof and a flat surface (15) opposing the structural surface on another side thereof, the structural surface (14) including a linear arrangement of right-angled isosceles triangular prisms arranged in parallel and  
5 configured to form a plurality of peaks (11) and valleys (12), each of the prisms having perpendicular surfaces that slant by an angle of approximately 45° with respect to the flat surface (15),

wherein the structural surface (14) of at least one of  
10 the prism sheets is configured to have non-planar peaks (11) with a maximum height and a minimum height along a length direction of the peak, and a curved layer (17) having the same cycle as a cycle of height variation of the peak is formed at a boundary surface (16) between the structural  
15 surface 14 and the flat surface so as to maintain the right-angled isosceles triangular prisms formed due to a difference between the highest point and the lowest point of each of the peaks to have a predetermined size so that a distance between the valleys (12) is uniform along the length direction.

20 11. The prism sheet of claim 10, wherein the peak is shaped in a streamline curvature 18 in which a difference between the maximum height to the minimum height is shown in a fluent curvature.

25 12. The prism sheet of claim 10, wherein a streamline curvature formed due to a difference between heights of the peaks has a cycle, which is repeated periodically or non-periodically.

13. The backlight unit of claim 10, wherein the peak of the prism sheet has a height of 0.125 - 2.5  $\mu\text{m}$ .

14. The backlight unit of claim 10, wherein the prism  
5 sheet is made of transparent and flexible polymer film.

15. The backlight unit of claim 14, wherein the polymer film is made of any one polymer selected from the group consisting of acrylate, polycarbonate, polyester, and  
10 polyvinyl chloride.

16. The backlight unit of claim 14, wherein the polymer film is a multi-layer film in which acrylate is laminated on polycarbonate.  
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17. The backlight unit of claim 14, wherein the polymer film is a multi-layer film in which acrylate is laminated on polyester.